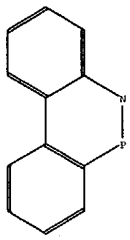
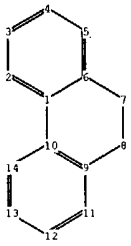
stnweb\Queries\45.str





g nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
g bonds :
1-2 1-6 1-10 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 9-11 10-14 11-12 12-13 13-14
ct/norm bonds :
1-10 6-7 7-8 8-9
malized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 9-10 9-11 10-14 11-12 12-13 13-14

ch level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom

```
* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1           Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2           "Ask CAS" for self-help around the clock
 NEWS  3  JAN 27   Source of Registration (SR) information in REGISTRY updated
                   and searchable
 NEWS  4  JAN 27   A new search aid, the Company Name Thesaurus, available in
                   CA/CAplus
 NEWS  5  FEB 05   German (DE) application and patent publication number format
                   changes
 NEWS  6  MAR 03   MEDLINE and LMEDLINE reloaded
 NEWS  7  MAR 03   MEDLINE file segment of TOXCENTER reloaded
 NEWS  8  MAR 03   FRANCEPAT now available on STN
 NEWS  9  MAR 29   Pharmaceutical Substances (PS) now available on STN
 NEWS 10  MAR 29   WPIFV now available on STN
 NEWS 11  MAR 29   New monthly current-awareness alert (SDI) frequency in RAPRA
 NEWS 12  APR 26   PROMT: New display field available
 NEWS 13  APR 26   IFIPAT/IFIUDB/IFICDB: New super search and display field
                   available
 NEWS 14  APR 26   LITALERT now available on STN
 NEWS 15  APR 27   NLDB: New search and display fields available
 NEWS 16  May 10   PROUSDDR now available on STN
 NEWS 17  May 19   PROUSDDR: One FREE connect hour, per account, in both May
                   and June 2004
 NEWS 18  May 12   EXTEND option available in structure searching
 NEWS 19  May 12   Polymer links for the POLYLINK command completed in REGISTRY
 NEWS 20  May 17   FRFULL now available on STN
 NEWS 21  May 27   STN User Update to be held June 7 and June 8 at the SLA 2004
                   Conference
 NEWS 22  May 27   New UPM (Update Code Maximum) field for more efficient patent
                   SDIs in CAplus
 NEWS 23  May 27   CAplus super roles and document types searchable in REGISTRY
 NEWS 24  May 27   Explore APOLLIT with free connect time in June 2004

 NEWS EXPRESS  MARCH 31 CURRENT WINDOWS VERSION IS V7.00A, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 26 APRIL 2004
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
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 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

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FILE 'HOME' ENTERED AT 15:03:11 ON 09 JUN 2004

=> file reg
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21
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FILE 'REGISTRY' ENTERED AT 15:03:17 ON 09 JUN 2004
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 8 JUN 2004 HIGHEST RN 690955-30-7
DICTIONARY FILE UPDATES: 8 JUN 2004 HIGHEST RN 690955-30-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

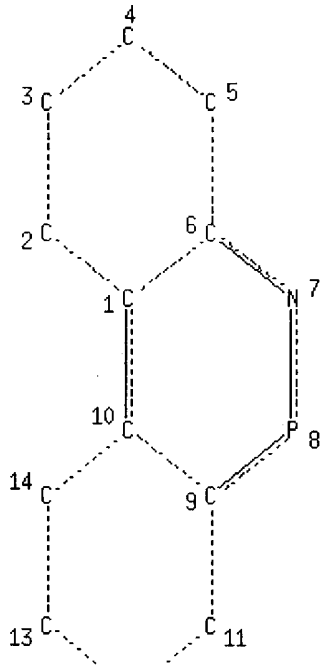
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

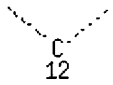
Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=>
L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR



Page 1-A



Page 2-A
NODE ATTRIBUTES:
NSPEC IS R AT 1

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NSPEC   IS R      AT   2
NSPEC   IS R      AT   3
NSPEC   IS R      AT   4
NSPEC   IS R      AT   5
NSPEC   IS R      AT   6
NSPEC   IS R      AT   7
NSPEC   IS R      AT   8
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NSPEC   IS R      AT  10
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NSPEC   IS R      AT  13
NSPEC   IS R      AT  14
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  14

STEREO ATTRIBUTES: NONE


=> s l1
SAMPLE SEARCH INITIATED 15:04:32 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -     40 TO ITERATE

100.0% PROCESSED      40 ITERATIONS                              3 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:          421 TO     1179
PROJECTED ANSWERS:               3 TO      163

L2            3 SEA SSS SAM L1

=> s l1 full
THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 15:04:39 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -    962 TO ITERATE

100.0% PROCESSED     962 ITERATIONS                             22 ANSWERS
SEARCH TIME: 00.00.01

L3           22 SEA SSS FUL L1

=> file hcaplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                 ENTRY    SESSION
FULL ESTIMATED COST                              156.26     156.47

FILE 'HCAPLUS' ENTERED AT 15:04:54 ON 09 JUN 2004
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FILE COVERS 1907 - 9 Jun 2004 VOL 140 ISS 24
FILE LAST UPDATED: 8 Jun 2004 (20040608/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3
L4 4 L3

=> s l4 and selent, d?/au
27 SELENT, D?/AU
L5 1 L4 AND SELENT, D?/AU

=> d l5, ibib abs fhitstr, 1

L5 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

ACCESSION NUMBER: 2002:405762 HCAPLUS
DOCUMENT NUMBER: 136:401882
TITLE: Preparation of novel phosphinine compounds and their metal complexes as catalysts for hydroformylation reaction
INVENTOR(S): Roettger, Dirk; Hess, Dieter; Boerner, Armin; **Selent, Detlef**; Kadyrov, Renat; Wiese, Klaus-Dieter; Borgmann, Cornelia
PATENT ASSIGNEE(S): OXENO Olefinchemie GmbH, Germany
SOURCE: Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1209164	A1	20020529	EP 2001-124864	20011018
EP 1209164	B1	20031210		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10058383	A1	20020529	DE 2000-10058383	20001124
AT 256135	E	20031215	AT 2001-124864	20011018
US 2002103375	A1	20020801	US 2001-989077	20011121
JP 2002212195	A2	20020731	JP 2001-357869	20011122

PRIORITY APPLN. INFO.: DE 2000-10058383 A 20001124
OTHER SOURCE(S): CASREACT 136:401882; MARPAT 136:401882
GI

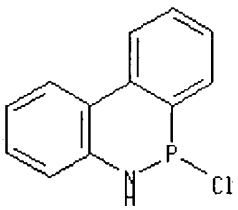
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The prepn. of title compds. I (n = 0-1; Y = O, NH, organoamino; R1-R9 = H, aliph. or arom. hydrocarbyl, F, Cl, Br, I, CF3, alkoxy, organocarbonyl, alkoxycarbonyl, alkali, alk. earth metal, ammonium, phosphonium substituted alkoxycarbonyl, organothio, organosulfonyl, etc.; Q, W, X = C1-50 aliph., alicyclic, aliph.-alicyclic, heterocyclic, aliph.-heterocyclic, arom., aliph.-arom. hydrocarbyl), useful as cocatalyst for [acacRh(COD)] catalyzed hydroformylation reaction, is described. Thus, cyclization of 2,2'-bis(6-tert-butyl-1-hydroxy-4-methoxyphenyl) with PCl3 in THF in presence of pyridine followed by alkoxylation with lithiated 2,2'-bis(6-tert-butyl-1-hydroxy-4-methoxyphenyl) and condensation with lithiated 10-chloro-9,10-dihydro-9-aza-10-phosphaphenanthrene gave 48% title compd. II. II cocatalyzed and [acacRh(COD)] catalyzed hydroformylation of 1-octene to give nonanal is described.

IT **109222-35-7P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and phenoxylation of)

RN 109222-35-7 HCAPLUS

CN Dibenz[c,e][1,2]azaphosphorine, 6-chloro-5,6-dihydro- (6CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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=> d his

     (FILE 'HOME' ENTERED AT 15:03:11 ON 09 JUN 2004)

     FILE 'REGISTRY' ENTERED AT 15:03:17 ON 09 JUN 2004
L1              STRUCTURE UPLOADED
L2            3 S L1
L3           22 S L1 FULL

     FILE 'HCAPLUS' ENTERED AT 15:04:54 ON 09 JUN 2004
L4            4 S L3
L5            1 S L4 AND SELENT, D?/AU

=> s l4 not l5
L6            3 L4 NOT L5

=> s l6 and borner, a?/au
             98 BORNER, A?/AU
L7            0 L6 AND BORNER, A?/AU

=> s l6 and kadyrov, r?/au
            219 KADYROV, R?/AU
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L8            0 L6 AND KADYROV, R?/AU

=> s l6 and borgmann, c?/au
             42 BORGMANN, C?/AU
L9            0 L6 AND BORGMANN, C?/AU

=> s l6 and hess, d?/au
            793 HESS, D?/AU
L10           0 L6 AND HESS, D?/AU

=> help sea
The SEARCH command is used to execute a search in the current file.

To use this command, enter SEARCH and a query name or a logic
expression.  The system will create an L-number answer set containing
the results of the search.

A logic expression (profile) consists of L-numbers, E-numbers, text or
numeric terms and/or saved query names, joined by Boolean operators
and/or by appropriate proximity operators or by numeric operators in
numeric expressions.

The order of precedence for the execution of operators is (highest
first): numeric operators; (W), (NOTW), (A), and (NOTA); (S) and
(NOTS); (P) and (NOTP); (L) and (NOTL); AND and NOT; then OR.
Parentheses (nesting) can be used to modify this order.  For
information on the use of operators, enter HELP OPERATORS at an arrow
prompt (=>).  Enter HELP NUMERIC for an explanation of how to use
numeric terms in a search.

The search terms you choose must be appropriate for the file you are
in, e.g., structures can be searched in the REGISTRY file but not in
the CAPLUS file.  Generic structure files may be searched only with
single structures, without logic operators or screen terms.

Ranges of L-numbers and/or E-numbers may be searched as if you had
connected them with OR operators.  For example, S E3-E6,E12,L2,L9-8
would be searched as if you had entered E3 OR E4 OR E5 OR E6 OR E12 OR
L2 OR L9 OR L8.

To automatically add plurals for terms in the Basic Index or fields
that comprise the Basic Index in a single search in an English
language database, include PLURALS=ON in the command line, e.g.,
SEARCH HEDGE AND CLIPPER PLURALS=ON.  For more information on
searching plurals automatically, enter HELP SET PLURALS at an arrow
prompt).

You may search a phrase in a field that contains single words and an
appropriate operator, usually (W), will automatically be inserted
between the words in the phrase.

Example:

   => SEARCH ACID RAIN AND POLLUTION
      752118 ACID
        5169 RAIN
        1214 ACID RAIN
                (ACID(W)RAIN)
       93061 POLLUTION
   L2   1214 ACID RAIN AND POLLUTION
```

If you do not wish to see how a phrase was actually searched, enter SET INTERPRET OFF at an arrow prompt before executing the search. For more information, enter HELP SET INTERPRET.

You may select terms from an answer set in one file and search these terms in the same or another field in the same or another file. For more information on this type of file crossover, enter HELP SMARTSELECT at an arrow prompt. For more information on other types of file crossover, enter HELP CROSSOVER in the file.

You may choose to have the SEARCH command automatically inserted into your input query. To do this, enter SET AUTOSEARCH ON at an arrow prompt. For more information, enter HELP SET AUTOSEARCH.

If a saved query appears in a search, the full name must be entered, including /Q, e.g., SEARCH L3 AND HEDGE/Q NOT SULFUR/Q.

Saved answer sets, L-number lists, and SDI profiles must have L-numbers to be used in the SEARCH command. First ACTIVATE the saved item. Then use the L-number, not the saved name, in the SEARCH command.

Searches can be done on a limited portion of the file. For an explanation, enter HELP SEARCH RANGE at an arrow prompt.

Search terms may be truncated. For information on truncation symbols, enter HELP TRUNCATION at an arrow prompt. To see what terms or symbols may need special care when used in a search, enter HELP RESERVED.

To have L-numbers assigned to intermediate postings in a SEARCH, enter SEARCH STEPS. For more information, enter HELP SEARCH STEPS at an arrow prompt.

With fields for which a thesaurus file exists, search queries may be enriched with additional search terms such as Narrower Terms, Broader Terms, Related Terms, etc. For more information about using a thesaurus in searches, enter HELP THESAURUS at an arrow prompt in the desired file.

When SmartSelect L-numbers are searched, a new SmartSelect L-number can be created that contains those terms for which there were no postings. For more information, enter HELP SET AUDIT at an arrow prompt.

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=> d his

     (FILE 'HOME' ENTERED AT 15:03:11 ON 09 JUN 2004)

     FILE 'REGISTRY' ENTERED AT 15:03:17 ON 09 JUN 2004
L1             STRUCTURE UPLOADED
L2               3 S L1
L3              22 S L1 FULL

     FILE 'HCAPLUS' ENTERED AT 15:04:54 ON 09 JUN 2004
L4               4 S L3
L5               1 S L4 AND SELENT, D?/AU
L6               3 S L4 NOT L5
L7               0 S L6 AND BORNER, A?/AU
```

```
L8             0 S L6 AND KADYROV, R?/AU
L9             0 S L6 AND BORGMANN, C?/AU
L10            0 S L6 AND HESS, D?/AU

=> s l6 and rottger, d?/au
            15 ROTTGER, D?/AU
L11            0 L6 AND ROTTGER, D?/AU

=> s l6 and wiese, d?/au
            30 WIESE, D?/AU
L12            0 L6 AND WIESE, D?/AU

=> d l6, ibib abs fhitstr, 1-3

L6   ANSWER 1 OF 3  HCAPLUS  COPYRIGHT 2004 ACS on STN
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Full Text | Citing References

ACCESSION NUMBER: 1961:105803 HCAPLUS
DOCUMENT NUMBER: 55:105803
ORIGINAL REFERENCE NO.: 55:19898b-i,19899a-e
TITLE: Synthesis and stereochemistry of heterocyclic phosphorus compounds. II. Loss of optical activity in the reduction of (+)-2-carboxy-9-phenyl-9-phosphafluorene 9-oxide
AUTHOR(S): Campbell, I. G. M.; Way, J. K.
CORPORATE SOURCE: Univ. Southampton, UK
SOURCE: Journal of the Chemical Society, Abstracts (1961) 2133-41
CODEN: JCSAAZ; ISSN: 0590-9791
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB cf. CA 55, 9423d. The prepn. of a group of 9-phenyl-9-phosphafluorene 9-oxides by cyclization of 2-biphenylylphenylphosphinic acids and the redn. of 2 of these oxides to 9-phenyl-9-phosphafluorene were described. 2-Carboxy-9-phenyl-9-phosphafluorene 9-oxide (I) was resolved by sepn. of the diastereoisomeric amides obtained from (+)- (II) and from (-)-1-phenylethylamine (III). (+)-I, [α]D, 126°, with LiAlH4 gave 2-hydroxymethyl-9-phenyl-9-phosphafluorene (IV) with complete loss of optical activity. This result and the retention of activity observed in the redn. of the azaphosphaphenanthrene oxide (V) were discussed. 2-Aminobiphenyl (0.1 mole) converted into the diazonium fluoroborate, the dry salt decompd. in 200 ml. EtOAc in the presence of 0.1 mole phenylphosphonous dichloride and 2 g. Cu bronze, after steam distn. the residue sepd. from the aq. layer, warmed with 25-30 ml. 10% NaOH, and faltered gave the Na salt of the product, acidified to give 9-10% 2-biphenylylphenylphosphinic acid (VI), m. 180-1° (AcOH). Similar procedure with 2-amino-4'-nitrobiphenyl gave 4'-nitro-2-biphenylylphenyl-phosphinic acid (VIa), m. 234-7°. 2-Amino-5-bromobiphenyl gave 11% 5-Br compd., m. 193-4°. 4-Methyl-2-biphenylylphenylphosphinic acid (VIb), prisms, m. 144-5° was obtained in 4-5% yield by this method. Phenylphosphonous chloride (4.7 g.) in 50 ml. Et2O added slowly to 2-biphenylylmagnesium iodide, the mixt. refluxed 1 hr., acidified, and the product treated with 5 ml. 30-vol. H2O2 gave 1.5 g. VI; Et ester, m. 112-14°; anilide m. 202-4°. 2-Iodo-4-methylbiphenyl, b0.3 110-12°, was obtained from the corresponding amine in 46% yield. Phenylphosphonous dichloride (7 ml.) in 75 ml. Et2O added to the Grignard reagent prepd. from 17 g. of the above iodo compd., the mixt. heated 45 min., shaken with 50 ml. 2N H2SO4 and 5 ml. 100-vol. H2O2, after 0.5 hr. the org. layer sepd., and evapd. gave 7.7 g. acid, m. 44-5°. VI was regained from polyphosphoric acid after 0.5 hr. at 120°, but at

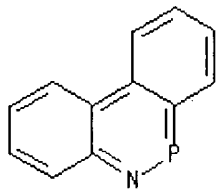
160° some decompn. occurred and 10% Ph2 was isolated. Concd. H2SO4 at 110° with VI 20 min. apparently caused sulfonation of the acid, but attempts to isolate sulfonated acids by formation of the Mg or Ba salts failed. VI (1 g.) converted into the acid chloride by treatment with SOCl2 in CHCl3, the oil heated in 20 ml. CS2 with 0.5 g. AlCl3 3 hrs., shaken with N HCl, and evapd. gave 0.8 g. unchanged VI. The expt. repeated with 10 ml. PhNO2 4 hrs. at 160° gave 0.6 g. unchanged VI. VI (1 g.) and 1.5 g. PCl5 refluxed 4 hrs. at 170-80°, the product extd. with 10% NaOH, and the remaining solid crystd. gave 0.26 g. 9-phenyl-9-phosphafluorene 9-oxide (VII), m. 167-8° (aq. alc.). Acidification of the alk. ext. gave 0.5 g. unchanged VI. VII formed a CdI2 complex, diamond shaped plates, m. 200-2°; the HgCl2 complex m. 145-7°. VIa (0.8 g.) similarly treated gave 0.15 g. 2-nitro-9-phenyl-9-phosphafluorene 9-oxide, m. 203° and 0.48 g. unchanged VIa. By the above process but with the quantity of PCl5 increased to 2 g. and the period of heating to 8 hrs. at 160-70° 4-bromo-2-biphenylylphenylphosphinic acid gave 0.65 g. 3-chloro-9-phenyl-9 phosphafluorene 9-oxide, m. 227-8°. VIb (2 g.) in 12 ml. PhNO2 heated 6 hrs. at 160-5° with 4 g. PCl5 gave 1.5 g. 2-methyl-9-phenyl-9-phosphafluorene 9-oxide (VIII), m. 146-7° (EtOAc-ligroine). Crude VIII (10 g.) heated in 45 ml. C5H5N and 25 ml. H2O, treated during 2-3 hrs. with 19.5 g. KMnO4, then heated 5 hrs. more with 30 ml. H2O, steam distd., and the alk. soln. acidified gave 5.9 g. I, m. 323-6° (aq. alc.). VIII (0.9 g.) was recovered from the pptd. MnO2. All attempts to resolve I by salt formation with optically active bases failed. Solns. of I with 1 or 2 equivs. III or (+)-amphetamine in alc. deposited oils and crystals, which, sepd. after several weeks from the oils, proved to be acid, m. 310°. I (1 g.) and 3 ml. III refluxed 3 hrs., poured into 20 ml. 4N HCl, and the solid extd. with satd. NaHCO3 gave 0.75 g. amide. The acid (0.35 g.) was regained from the alk. ext. The (-)-1-phenylethylamide (IX) was obtained in 0.14-g. yield as rosettes, m. 263-5°, [α]D -37.9°. Diln. of the filtrate from IX gave 0.14 g. optically pure (+)-acid amide (X), prisms, m. 273-5°, [α]D 211.5°. I (2 g.) in 5 ml. II was heated 5 hrs., poured into 50 ml. 2N HCl, the solids collected, extd. with aq. NaHCO3, and 0.22 g. acid recovered. The amide on crystn. gave 0.45 g. (+)-acid (+)-1-phenylethylamide (XI), m. 265-6°, [α]D 38.6°. The mother liquors afforded 0.50 g. pure (-)-acid (+)-1-phenylethylamide (XII), heavy prisms, m. 274-5°, [α]D -212°. A repetition of this resolution with 2.4 g. I gave 0.61 g. XI and 0.31 g. XII. X (0.14 g.) refluxed 1 hr. with 5 ml. 25% KOH in MeOH-H2O gave 0.14 g. acid, m. 140-5° (decompn.), [α]D 32.4°. IX (0.1 g.) similarly treated gave 85 mg. similar acid. Hydrolysis of 0.2 g. XII by the same method gave 0.17 g. acid, [α]D -32.4°. The acid, [α]20D -37.5°, (0.1 g.) in 1 ml. alc. refluxed 5 hrs. with 2 ml. concd. HCl gave optically inactive product. XI (0.65 g.) in 5 ml. alc. and 10 ml. concd. HCl refluxed 12 hrs. gave 0.41 g. (+)-I, m. 250-1°, [α]20D 126° (c, 0.238 0.1N NaOH). Similar treatment of XII gave (-)-I, m. 250-1°, [α]20D -126.1° (c 0.283, 0.1N NaOH). 9-Phenyl-9-phosphafluorene 9-oxide (0.2 g.) and 0.2 g. NaBH4 in 5 ml. MeOH warmed 3 hrs. gave 0.15 g. unchanged oxide. I (0.5 g.) neutralized with 0.1N NaOH and kept 3 days at room temp. with 0.5 g. NaBH4 and 2 ml. H2O gave 0.45 g. unchanged I. I was also recovered when the mixt. was kept 24 hrs. at 50° or 10 hrs. at 100°. 9-Phenyl-9-phosphafluorene 9-oxide (0.47 g.) in 5 ml. C6H6 added dropwise to 0.2 g. LiAlH4, the mixt. heated 5 hrs., and poured into 20% aq. NaOH gave 90 mg. 9-phenyl-9-phosphafluorene, m. 90-2°. I (0.5 g.) in 10 ml. C6H6 added slowly to 0.4 g. LiAlH4 in 10 ml. Bu2O during 0.5 hr. at 80-90°, the mixt.

heated 4 hrs., and set aside overnight gave 0.25 g. IV solvate, m. 52-4°. Anhyd. IV m. 38-42°. The filtrate afforded 50 mg. 2-hydroxymethyl-9-phenyl-9-phosphafluorene 9-oxide, m. 195-6° (alc.-EtOAc). Methylation of the original gum gave IV.MeI, m. 228-30°. When the reaction was repeated with 0.4 g. (+)-I and 0.3 g. LiAlH4, the 0.32 g. IV was optically inactive. Relevant infrared absorption bands were given.

IT **230-22-8**, Dibenz[c,e][1,2]azaphosphorine
(derivs., 6-oxides, redn. of)

RN 230-22-8 HCAPLUS

CN Dibenz[c,e][1,2]azaphosphorine (8CI, 9CI) (CA INDEX NAME)



L6 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

ACCESSION NUMBER: 1961:48713 HCAPLUS
DOCUMENT NUMBER: 55:48713
ORIGINAL REFERENCE NO.: 55:9423d-i,9424a-i
TITLE: Synthesis and stereochemistry of heterocyclic phosphorus compounds. I. Preparation of (+)- and (-)-10-(p-dimethylaminophenyl)-9,10-dihydro-9-aza-10-phosphaphenanthrene
AUTHOR(S): Campbell, I. G. M.; Way, J. K.
CORPORATE SOURCE: Univ. Southampton, UK
SOURCE: Journal of the Chemical Society, Abstracts (1960) 5034-41
CODEN: JCSAAZ; ISSN: 0590-9791
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 55:48713

GI For diagram(s), see printed CA Issue.

AB The synthesis of a series of 10-aryl-9,10-dihydro-9-aza-10-phosphaphenanthrenes (I) and their 10-oxides (II) was described. (+)-10-(p-Dimethylaminophenyl)-9,10-dihydro-9-aza-10-phosphaphenanthrene 10-oxide (III) and the (-)-isomer (IV) were obtained by crystn. of the camphor-10-sulfonates. Redn. of III and IV with LiAlH4 gave (-)-10-(p-dimethylaminophenyl)-9, 10-dihydro-9-aza-10-phosphaphenanthrene (V) and the (+)-isomer (VI), resp. The active phosphines possessed considerable optical stability but were too susceptible to atm. oxidn. to be suitable for racemization studies. The configuration of the mol. was discussed and the main infrared absorption bands of the compds. were recorded. Toluene-3,4-dithiol (5 g.) and 1 ml. C5H5N in 100 ml. Et2O treated with 7.2 g. p-dimethylaminophenylphosphonous dichloride, C5H5N.HCl removed, and the product isolated gave 4 g. 2-(p-dimethylaminophenyl)-5-methyl-1,3-dithia-2-phosphaindan (VII), m. 125-6° (Et2O); monomethiodide m. 125.5-7.0° (decompn.) (alc.). 2-Aminobiphenyl (8.5 g.) and 70 ml. PCl3 refluxed 8 hrs., the sticky mass remaining after removal of excess PCl3 cyclized by heating 6 hrs. at 160-5° with 0.5 g. AlCl3, the product dissolved in C6H6, 5 ml. POCl3 added, the mixt. refluxed 0.5 hr., cooled, the filtrate evapd., and the product filtered off gave 4.2 g. crude 10-chloro-9,10-dihydro-9-aza-10-phosphaphenanthrene

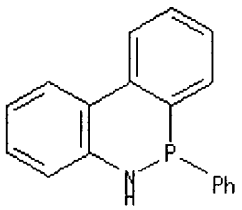
(VIII). VIII was not further purified, since it rapidly decompd. by air, but was converted immediately into the required I. Crude VIII (from 0.05 mole of the amine) in 120 ml. C6H6 under N treated during 15 min. with PhLi (from 16.2 g. PhBr and 1.5 g. Li) in 100 ml. Et2O, the mixt. refluxed 1 hr., cooled, poured into ice H2O, and the org. layer sepd. and evapd. gave 1.5 g. I (R = R' = H), m. 181° (C6H6); methylation gave the methylphosphine methiodide, m. 215.5-16.5° (decompn.) (alc.). I were similarly prepd. except in the case of the p-bromo isomer which was obtained from the cyclic chloride by interaction of the mono Grignard reagent from p-dibromobenzene. They were crystd. from alc. or alc.-EtOAc. II were obtained from pure I in almost quant. yield, or from crude products of the arylation reaction, by addn. of 100-vol. H2O2 to a soln. in alc. or alc.-EtOAc at room temp. After chilling overnight, II were collected, and recrystd. The following I and II were obtained (R, R', m.p. of I, % yield of I, and m.p. of II given): Me, H, 125-8°, 25, 246-8°; H, Me, 135-8°, 5, 232-5°; H, Br, 145-7°, 9, 223-6°; H, NMe2, 148-53°, 23, 258-60°. I(R = R' = H) oxide m. 289-90° (alc.). II(R = R' = H) heated 10 hrs. with 5N HCl gave (2'-amino-2-biphenylyl)phenylphosphinic acid-HCl, m. 244° (decompn.) (4N HCl); after melting, the compd. solidified and rem. 290°. IV (R = Me, R' = H) (0.45 g.) in 3 ml. C5H5N and 3.5 ml. H2O heated, and treated during 1 hr. with 0.9 g. KMnO4, the mixt. heated 3 hrs., steam distd., and filtered gave no identifiable product from the filtrate. From the MnO2 0.25 g. unchanged oxide was obtained. I (R = H, R' = NMe2) (0.4 g.) and 0.3 g. (+)-camphor-10-sulfonic acid in 5 ml. alc. gave no cryst. product; addn. of Et2O pptd. a gum. The residue set aside several days in aq. alc. gave 0.16 mg. starting material. Similar results were obtained with tartaric acid and dibenzoyltartaric acid. I (R = H, R' = NMe2) oxide (3.3 g.) and 2.35 g. (+)-camphor-10-sulfonic acid in 20 ml. alc. and 40 ml. EtOAc at 75° gave 2 fractions. The first fraction of 3.67 g. was extd. with refluxing EtOAc; the 2.85 g. of residue had [α]D 0°. The salt from the evapd. ext. had [α]D 58.5°. The inactive fraction crystd. from 1:1 alc.-EtOAc gave 0.45 g. (+)-acid (-)-base salt (IX), m. 203-5°, [α]D -67.9°. Attempts to obtain the more sol. salt optically pure failed. The most dextrorotatory fraction (X) gave 0.52 g. material, [α]D 58.5°. X afforded III in 0.16-g. yield, [α]D 150.8°. Optically impure III (1.6 g.) regained from the resolution was converted into X, but repeated crystn. of the 1st fraction of salt failed to yield the pure X. To obtain pure III the resolution was repeated with 3.3 g. III and 2.36 g. (-)-camphor-10-sulfonic acid in alc. and EtOAc. Three fractions of salt were sepd. The 1st, 2.4 g., was collected after 3 hrs., the 2nd, 1.8 g., after evapn., and the third of 0.5 g., after concn. to 5 ml. and addn. of 5 ml. EtOAc. Three crystns. of the 1st fraction gave pure (-)-acid(+)-base salt, [α]D 67.7°. Again it proved to be impossible to isolate the (-)-acid(-)-base salt though a fraction of 0.13 g., [α]D -81.7°, was obtained. The pure salt was obtained by mixing equiv. amts. of the components in alc. and evapg. to a sirup which crystd. and m. 188-90°. IX (0.45 g.) in 100 ml. warm alc. cooled to -10° and decompd. with 15 ml. 0.5N NH3 and a little H2O gave 0.28 g. IV, m. 135-6° (decompn.), [α]22D -152.6°. The (-)-acid(+)-base salt (0.58 g.) was similarly decompd. to 0.34 g. III, m. 135-6° (decompn.), [α]21D 152.8°. III (0.2 g.) added portionwise during 45 min. to 0.15 g. LiAlH4 suspended in 4.5 ml. Bu2O and 10 ml. C6H6, the mixt. heated 6-7 hrs., cooled, poured into H2O, and the residue crystd. gave 63 mg. V, m. 143-8°, [α]21D -128.0° (c 0.2265, EtOAc). The redn. was repeated with 0.2 g. IV

under the same conditions but the heating period was reduced to 4 hrs.; removal of the C6H6 and chilling gave the first fraction of 41 mg., which was the oxide. Evapn. of the residual C6H6 gave 81 mg. VI, m. 154-6°, [α]21D 141.6° (c 0.219, EtOAc). A 2nd redn. of 0.28 g. III gave 0.15 g. V. This specimen (46 mg.) in 20 ml. CHCl3 had [α]20D -221.7°. The rotation dropped slowly at room temp. and after 18 days reached [α]20D 0.20°, indicating oxidn. V in Bu2O was rapidly heated to the b.p., held there 0.5 hr., and cooled rapidly to 19°; the filtered soln. had [α]19D 0.10°. Isolation gave 33 mg. product, m. 148-56°, [α]20D 150.4° (c 1.138, alc.). V, [α]20D -138.1°, was kept in EtOAc until the rotation had dropped to [α]20D -112°. It was then shaken with 5 ml. 100-vol. H2O2 and 5 ml. H2O for 10 min. After drying, the soln. had α20D 0.41°, which represented [α]20D 129.5°, which was nearly pure III.

IT **110059-86-4**, Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenyl- (and derivs.)

RN 110059-86-4 HCAPLUS

CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenyl- (6CI) (CA INDEX NAME)



L6 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

QD1.A5

ACCESSION NUMBER:	1961:33112 HCAPLUS
DOCUMENT NUMBER:	55:33112
ORIGINAL REFERENCE NO.:	55:6494c-g
TITLE:	New heteroaromatic compounds. VI. Novel heterocyclic compounds of phosphorus
AUTHOR(S):	Dewar, M. J. S.; Kubba, Ved P.
CORPORATE SOURCE:	Univ. London
SOURCE:	Journal of the American Chemical Society (1960), 82, 5685-8 CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE:	Journal
LANGUAGE:	Unavailable
OTHER SOURCE(S):	CASREACT 55:33112

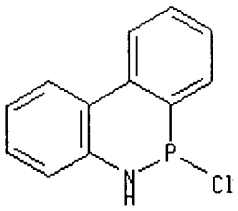
AB cf. CA 55, 2675g. Several novel heterocyclic analogs of phenanthrene contg. N and P in the 9- and 10-positions were prepd.; their spectra resembled those of analogous borazarophenanthrene derivs., suggesting that they too may be aromatic. o-H2NC6H4Ph (5 g.) in 50 cc. dry C6H6 added during 20 min. with stirring to 4.1 g. PCl3 in 500 cc. dry C6H6, refluxed 6 hrs., and evapd., and the residue (6.8 g.) refluxed 6 hrs. at 210-20° with 0.5 g. AlCl3 and sublimed at 180-90°/0.05 mm. yielded 2.9 g. 10-chloro-9,10-dihydro-9,10-azaphosphaphenanthrene (I), needles, m. 132-4°. Crude I in dry CH2Cl2 refluxed 6 hrs. with PhMgBr from 0.9 g. Mg and 5.8 g. PhBr under N gave 3.9 g. 10-Ph analog (II) of I, m. 178-9° (CH2Cl2). II kept 6 weeks in air gave 10-phenoxy-9,10-dihydro-9,10-azaphosphaphenanthrene 10-oxide (III),

prisms, m. 288-9° (CH2Cl2). II (1 g.), 0.97 g. AlCl3, and 1.15 g. PhBr heated 4 hrs. at 210-20° under a stream of N gave 0.42 g. 10-Ph analog (IV) of III, prisms, m. 283° (EtOH). Crude I (6 g.) shaken with H2O and CH2Cl2, and the org. layer worked up gave 3.9 g. 9,10-dihydro-9,10-azaphosphaphenanthrene 10-oxide (V), prisms m. 193-4° (CH2Cl2). Crude I (from 8.2 g. o-H2NC6H4Ph) in 500 cc. CH2Cl2 treated with MeMgI from 1.8 g. Mg and 10.3 g. MeI in Et2O, refluxed 8 hrs. with 10.5 g. MeI, and worked up gave 11.2 g. 10-methyl-9,10-dihydro-9,10-azaphosphaphenanthrene 10-methiodide (VI), light yellow prisms, m. 230-3° (decompn.) (CH2Cl2). II (1 g.) and 1.9 g. MeI in 100 cc. dry C6H6 refluxed 6 hrs. gave the Ph analog (VII) of VI, light yellow prisms, m. 214°. The ultraviolet absorption spectra of II, III, IV, V, VI, VII, 10,9-borazarophenanthrene (VIII), and the 10-Ph and 10-OH derivs. of VIII are recorded.

IT **109222-35-7**, Dibenz[c,e][1,2]azaphosphorine, 6-chloro-5,6-dihydro-
(prepn. of)

RN 109222-35-7 HCAPLUS

CN Dibenz[c,e][1,2]azaphosphorine, 6-chloro-5,6-dihydro- (6CI, 9CI) (CA INDEX NAME)



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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	44.98	201.45

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-2.77	-2.77

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This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

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L7            0 S L6 AND BORNER, A?/AU
L8            0 S L6 AND KADYROV, R?/AU
L9            0 S L6 AND BORGMANN, C?/AU
L10           0 S L6 AND HESS, D?/AU
L11           0 S L6 AND ROTTGER, D?/AU
L12           0 S L6 AND WIESE, D?/AU

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L13          2 L3

=> d l13, all, 1-2

L13  ANSWER 1 OF 2  CAOLD  COPYRIGHT 2004 ACS on STN
AN   CA55:9423d  CAOLD
TI   synthesis and stereochemistry of heterocyclic P compds. - (I) prepn. of
     (+)- and (-)-10-(p-dimethylaminophenyl)-9, 10-dihydro-9-aza-10-
     phosphaphenanthrene
AU   Campbell, Ishbel G. M.; Way, J. K.
IT  72367-13-6 100715-14-8 109222-35-7 109650-89-7 110059-84-2
     110059-86-4 110155-14-1 110155-15-2 110516-04-6 111065-19-1
     111065-51-1 111799-48-5 111799-49-6 111799-51-0 111799-52-1
     114793-83-8 117025-41-9

L13  ANSWER 2 OF 2  CAOLD  COPYRIGHT 2004 ACS on STN
AN   CA55:6494c  CAOLD
TI   heteroaromatic compds. - (VI) heterocyclic compds. of P
AU   Dewar, Michael J. S.; Kubba, V. P.
IT 108848-04-0 109222-35-7 109511-22-0 110059-84-2 110059-86-4
     111563-16-7 117000-57-4


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FILE 'REGISTRY' ENTERED AT 15:11:25 ON 09 JUN 2004


ANSWER 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   109222-35-7  REGISTRY
CN   Dibenz[c,e][1,2]azaphosphorine, 6-chloro-5,6-dihydro- (6CI, 9CI)  (CA
     INDEX NAME)
FS   3D CONCORD
MF   C12 H9 Cl N P
SR   CAOLD
LC   STN Files:   BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT, USPATFULL
         (*File contains numerically searchable property data)
DT.CA  CAplus document type:  Journal; Patent
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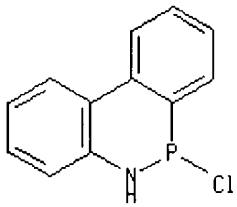
RL.P Roles from patents: PREP (Preparation); RACT (Reactant or reagent)
RL.NP Roles from non-patents: NORL (No role in record)



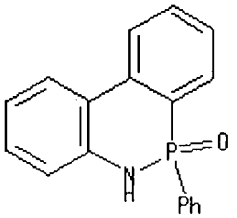
3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:25 ON 09 JUN 2004

=> fil reg; d acc 110059-84-2; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:11:29 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110059-84-2 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenyl-, 6-oxide (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H14 N O P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
        (*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



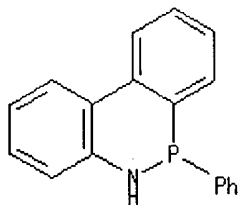
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:30 ON 09 JUN 2004

=> fil reg; d acc 110059-86-4; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:11:34 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110059-86-4 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenyl- (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H14 N P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



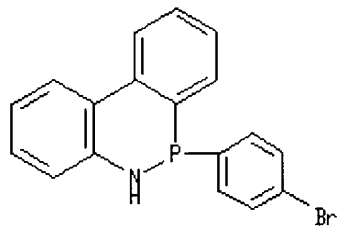
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:35 ON 09 JUN 2004

=> fil reg; d acc 110155-14-1; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:11:40 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110155-14-1 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 6-(p-bromophenyl)-5,6-dihydro- (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H13 Br N P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



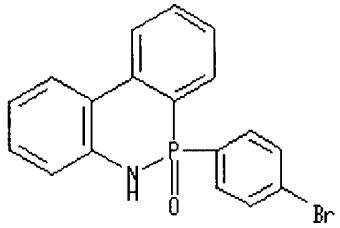
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:41 ON 09 JUN 2004

=> fil reg; d acc 110155-15-2; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:11:45 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110155-15-2 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 6-(p-bromophenyl)-5,6-dihydro-, 6-oxide (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H13 Br N O P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



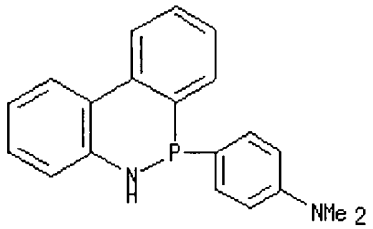
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:46 ON 09 JUN 2004

=> fil reg; d acc 110516-04-6; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:11:49 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110516-04-6 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 6-(p-dimethylaminophenyl)-5,6-dihydro- (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C20 H19 N2 P
SR CAOLD
LC STN Files: BEILSTEIN*, CAOLD
(*File contains numerically searchable property data)



1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:50 ON 09 JUN 2004

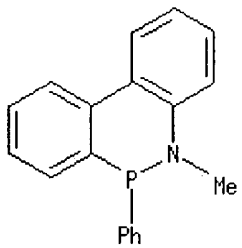
=> fil reg; d acc 111065-19-1; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:11:55 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 111065-19-1 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-5-methyl-6-phenyl-, methiodide (6CI) (CA INDEX NAME)
MF C19 H16 N P . C H3 I
SR CAOLD
LC STN Files: CAOLD

CM 1

CRN 111065-18-0
CMF C19 H16 N P



CM 2

CRN 74-88-4
CMF C H3 I

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:11:55 ON 09 JUN 2004

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=> fil reg; d acc 111065-51-1; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:12:08 ON 09 JUN 2004


ANSWER 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   111065-51-1  REGISTRY
CN   Dibenz[c,e][1,2]azaphosphorine, 6-(p-dimethylaminophenyl)-5,6-dihydro-,
     6-oxide (6CI)  (CA INDEX NAME)
FS   3D CONCORD
MF   C20 H19 N2 O P
CI   COM
SR   CAOLD
LC   STN Files:   BEILSTEIN*, CAOLD
         (*File contains numerically searchable property data)
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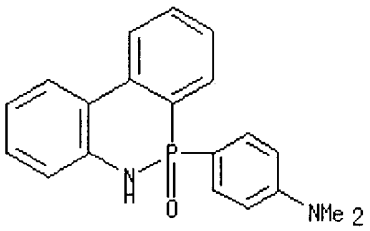


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                1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)


FILE 'CAOLD' ENTERED AT 15:12:08 ON 09 JUN 2004

=> fil reg; d acc 111799-48-5; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:12:13 ON 09 JUN 2004


ANSWER 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   111799-48-5  REGISTRY
CN   Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-3-methyl-6-phenyl-, 6-oxide
     (6CI)  (CA INDEX NAME)
FS   3D CONCORD
MF   C19 H16 N O P
SR   CAOLD
LC   STN Files:   BEILSTEIN*, CA, CAOLD, CAPLUS
         (*File contains numerically searchable property data)
DT.CA  CAplus document type:  Journal
RL.NP  Roles from non-patents:  NORL (No role in record)
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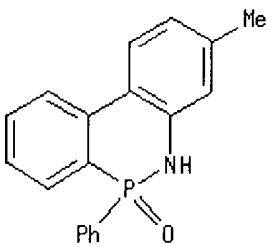


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                1 REFERENCES IN FILE CA (1907 TO DATE)
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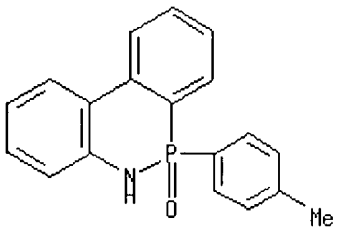
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:14 ON 09 JUN 2004

=> fil reg; d acc 111799-49-6; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:12:19 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 111799-49-6 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-p-tolyl-, 6-oxide (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C19 H16 N O P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



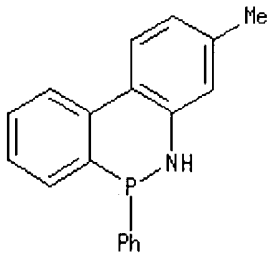
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:19 ON 09 JUN 2004

=> fil reg; d acc 111799-51-0; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:12:25 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 111799-51-0 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-3-methyl-6-phenyl- (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C19 H16 N P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



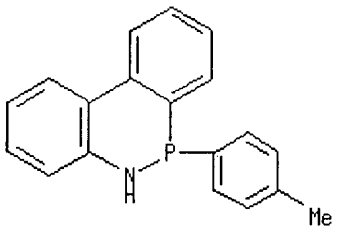
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:25 ON 09 JUN 2004

=> **fil reg; d acc 111799-52-1; fil CAOLD**

FILE 'REGISTRY' ENTERED AT 15:12:29 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 111799-52-1 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-p-tolyl- (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C19 H16 N P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



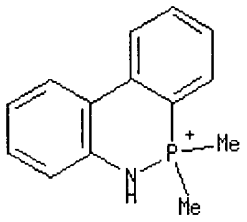
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:30 ON 09 JUN 2004

=> **fil reg; d acc 108848-04-0; fil CAOLD**

FILE 'REGISTRY' ENTERED AT 15:12:39 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 108848-04-0 REGISTRY
CN 5,6-Dihydro-6,6-dimethylbenz[c,e][1,2]azaphosphorinium iodide (6CI) (CA INDEX NAME)
MF C14 H15 N P . I
SR CAOLD
LC STN Files: BEILSTEIN*, CAOLD
(*File contains numerically searchable property data)



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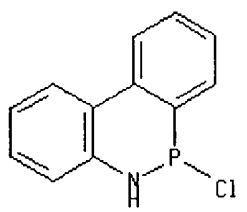
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:39 ON 09 JUN 2004

=> fil reg; d acc 109222-35-7; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:12:49 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 109222-35-7 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 6-chloro-5,6-dihydro- (6CI, 9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C12 H9 Cl N P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT, USPATFULL
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: PREP (Preparation); RACT (Reactant or reagent)
RL.NP Roles from non-patents: NORL (No role in record)



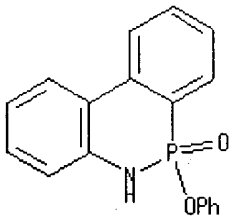
3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:49 ON 09 JUN 2004

=> fil reg; d acc 109511-22-0; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:12:55 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 109511-22-0 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenoxy-, 6-oxide (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H14 N O2 P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



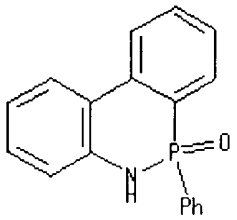
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:12:55 ON 09 JUN 2004

=> fil reg; d acc 110059-84-2; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:13:07 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110059-84-2 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenyl-, 6-oxide (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H14 N O P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



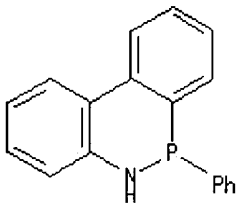
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:13:07 ON 09 JUN 2004

=> fil reg; d acc 110059-86-4; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:13:13 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 110059-86-4 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-6-phenyl- (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C18 H14 N P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)



2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

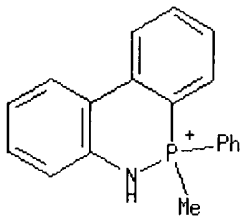
FILE 'CAOLD' ENTERED AT 15:13:14 ON 09 JUN 2004

=> fil reg; d acc 111563-16-7; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:13:21 ON 09 JUN 2004

ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 111563-16-7 REGISTRY
CN 5,6-Dihydro-6-methyl-6-phenyldibenz[c,e][1,2]azaphosphorinium iodide (6CI)

(CA INDEX NAME)
MF C19 H17 N P . I
SR CAOLD
LC STN Files: BEILSTEIN*, CAOLD
(*File contains numerically searchable property data)



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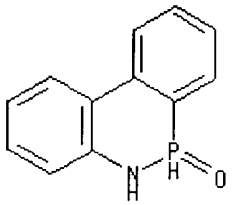
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:13:22 ON 09 JUN 2004

=> fil reg; d acc 117000-57-4; fil CAOLD

FILE 'REGISTRY' ENTERED AT 15:13:26 ON 09 JUN 2004

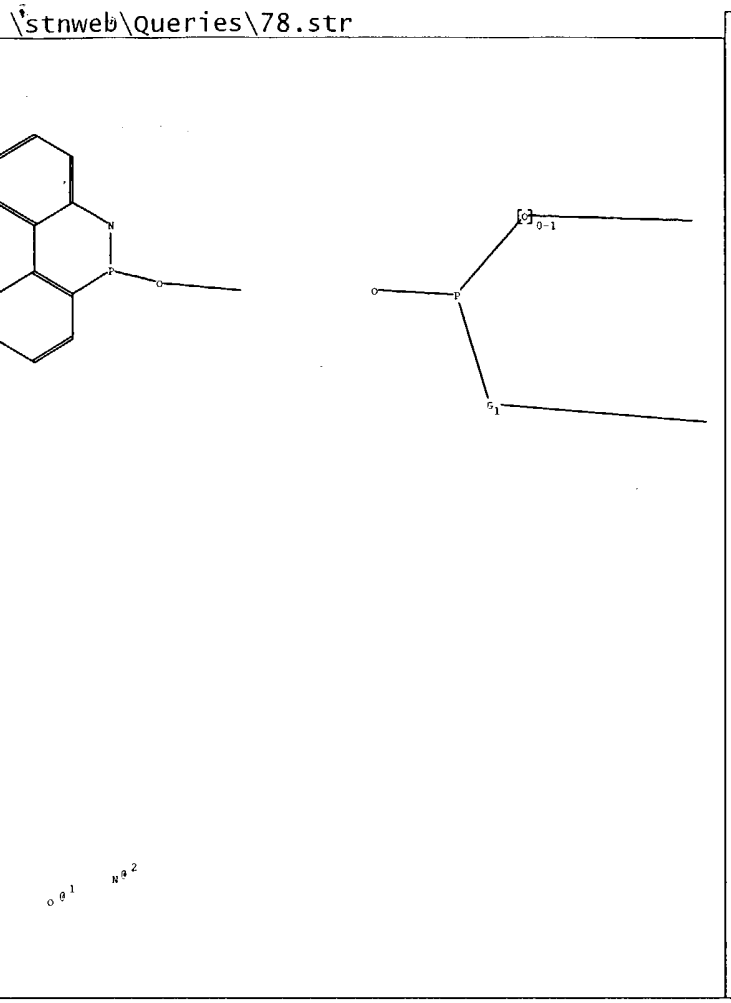
ANSWER 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 117000-57-4 REGISTRY
CN Dibenz[c,e][1,2]azaphosphorine, 5,6-dihydro-, 6-oxide (6CI) (CA INDEX NAME)
FS 3D CONCORD
MF C12 H10 N O P
SR CAOLD
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: NORL (No role in record)

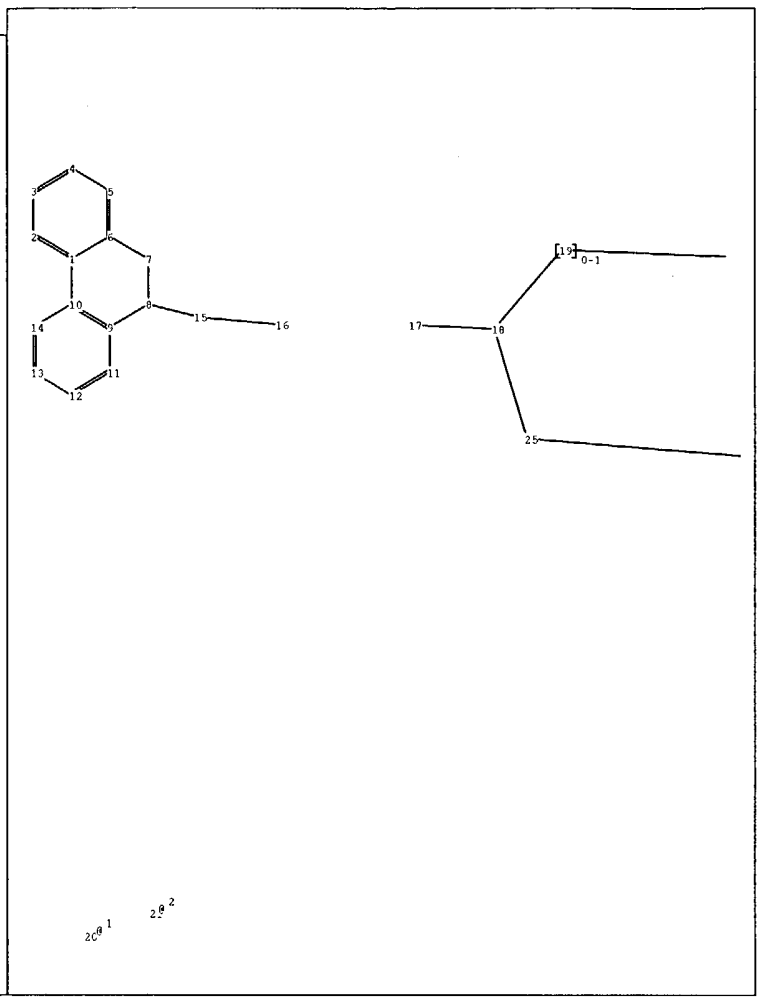


1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

FILE 'CAOLD' ENTERED AT 15:13:27 ON 09 JUN 2004

\stnweb\Queries\78.str



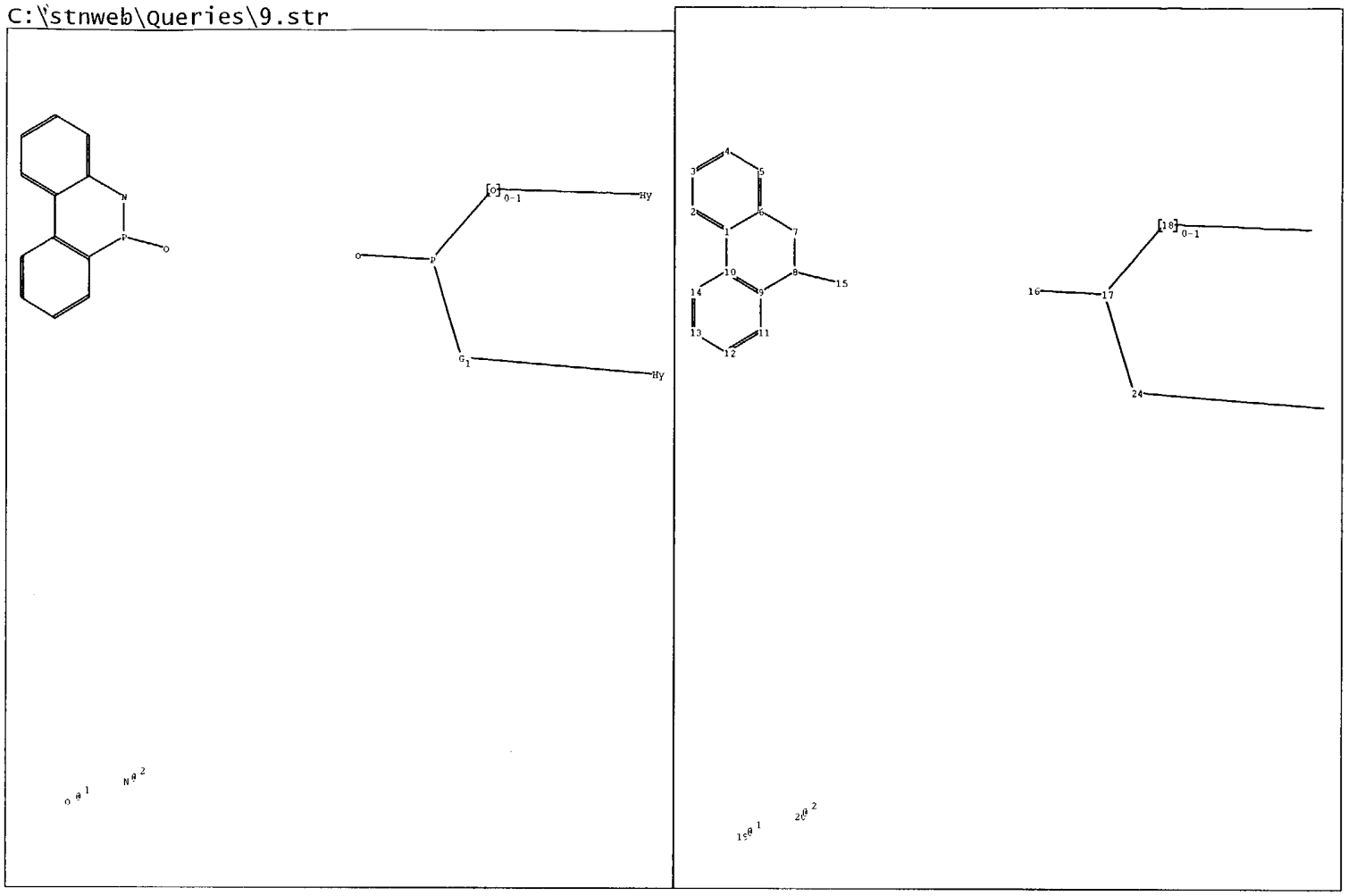


hain nodes :
15 17 20 21
ing nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
ing/chain nodes :
16 18 19 25 26 27
hain bonds :
8-15 15-16 17-18
ing/chain bonds :
18-19 18-25 19-27 25-26
ing bonds :
1-2 1-6 1-10 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 9-11 10-14 11-12 12-13 13-14
xact/norm bonds :
1-10 6-7 7-8 8-9 8-15 15-16 17-18 18-19 18-25 19-27 25-26
ormalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 9-10 9-11 10-14 11-12 12-13 13-14
solated ring systems :
containing 1 :

1:[*1],[*2]

atch level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS 20:CLASS
21:CLASS 25:CLASS 26:CLASS 27:CLASS

C:\stnweb\Queries\9.str

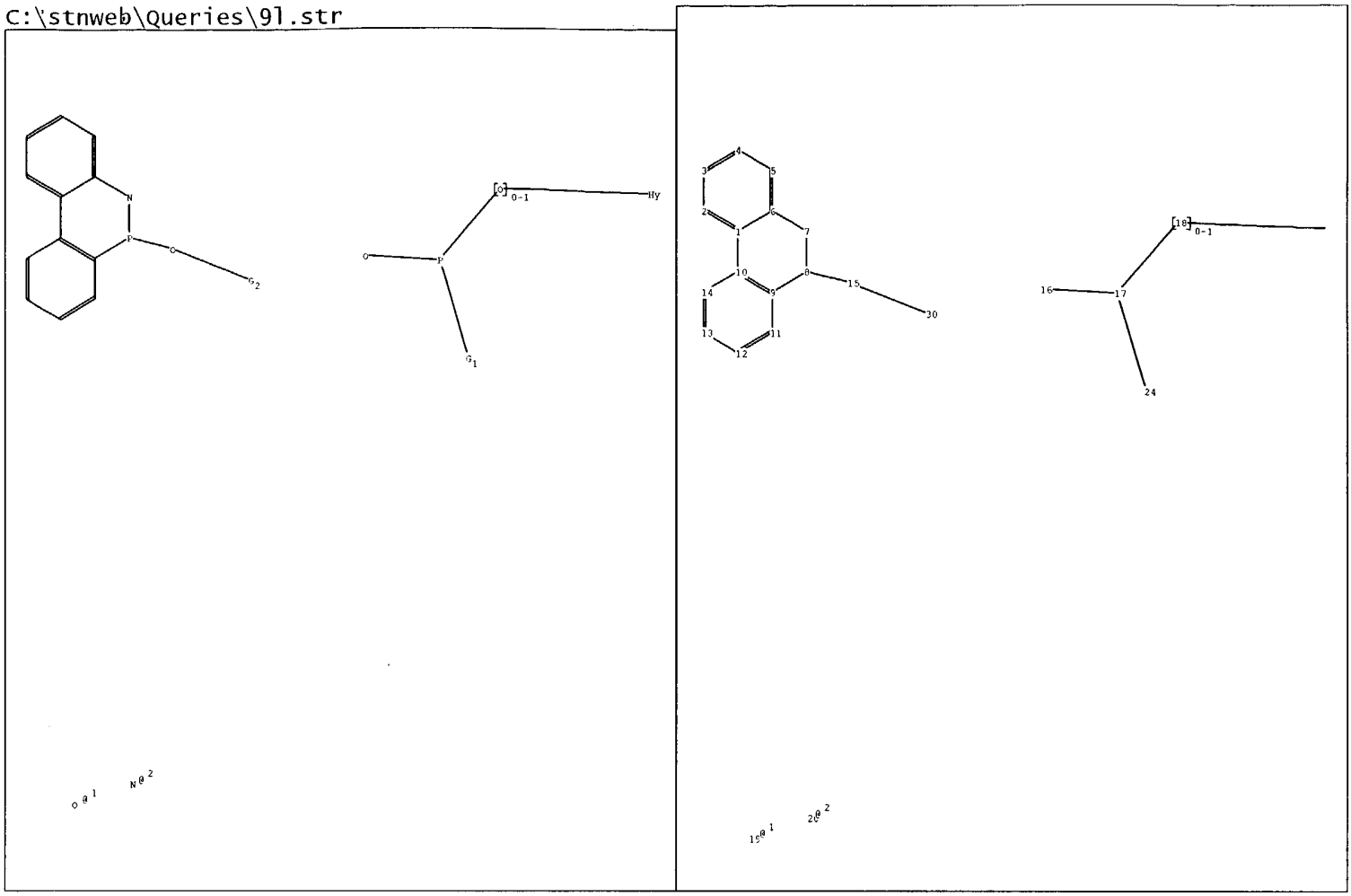


chain nodes :
15 16 19 20
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
ring/chain nodes :
17 18 24 25 26
chain bonds :
8-15 16-17
ring/chain bonds :
17-18 17-24 18-26 24-25
ring bonds :
1-2 1-6 1-10 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 9-11 10-14 11-12 12-13 13-14
exact/norm bonds :
1-10 6-7 7-8 8-9 8-15 16-17 17-18 17-24 18-26 24-25
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 9-10 9-11 10-14 11-12 12-13 13-14
isolated ring systems :
containing 1 :

G1:[*1],[*2]

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS 20:CLASS
24:CLASS 25:CLASS 26:CLASS

C:\stnweb\Queries\91.str



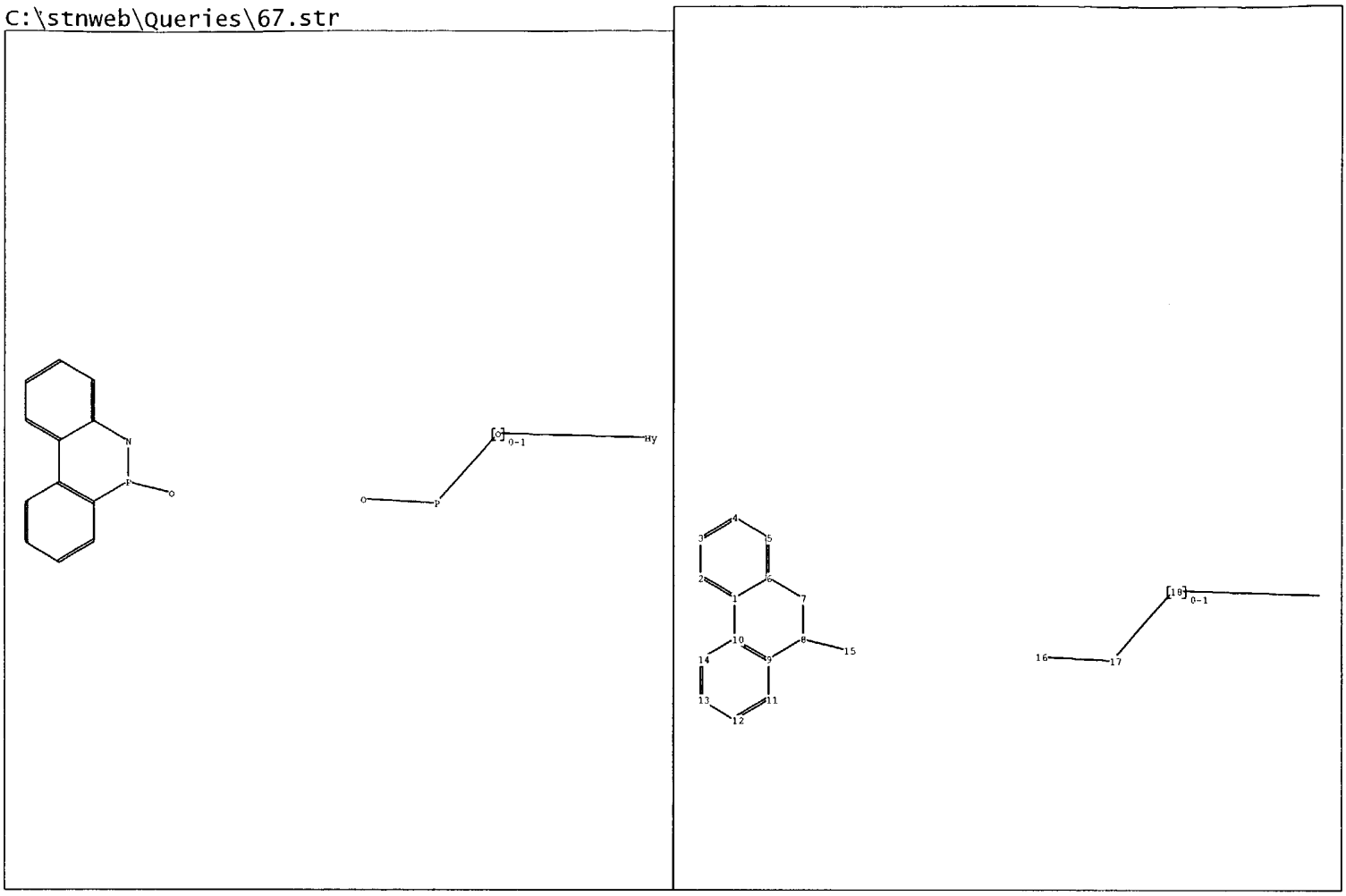
chain nodes :
15 16 19 20 30
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
ring/chain nodes :
17 18 24 25
chain bonds :
8-15 15-30 16-17
ring/chain bonds :
17-18 17-24 18-25
ring bonds :
1-2 1-6 1-10 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 9-11 10-14 11-12 12-13 13-14
exact/norm bonds :
1-10 6-7 7-8 8-9 8-15 15-30 16-17 17-18 17-24 18-25
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 9-10 9-11 10-14 11-12 12-13 13-14
isolated ring systems :
containing 1 :

G1:[*1],[*2]

G2:Cy,Ak

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS 20:CLASS
24:CLASS 25:CLASS 30:CLASS

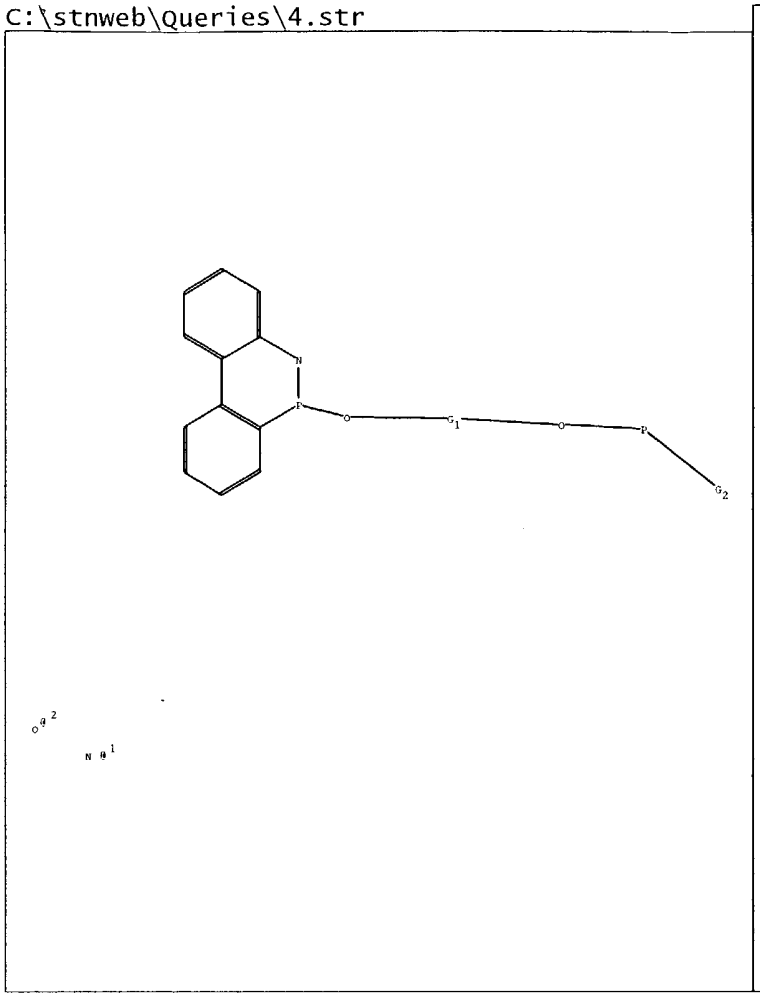
C:\stnweb\Queries\67.str

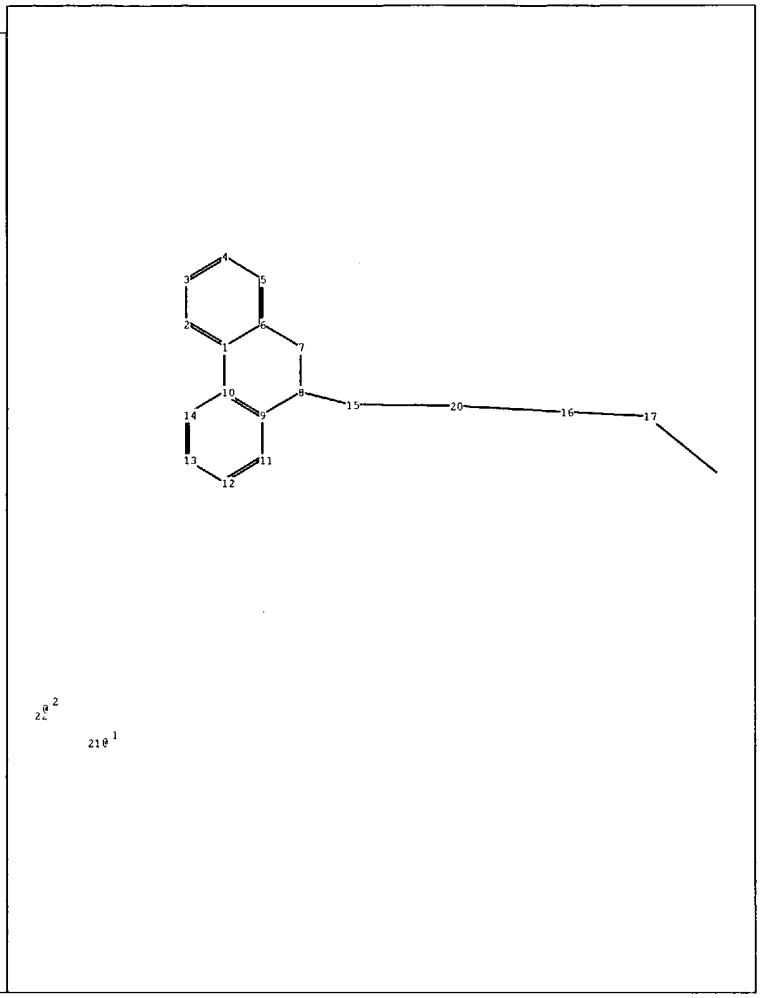


chain nodes :
15 16
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
ring/chain nodes :
17 18 19
chain bonds :
8-15 16-17
ring/chain bonds :
17-18 18-19
ring bonds :
1-2 1-6 1-10 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 9-11 10-14 11-12 12-13 13-14
exact/norm bonds :
1-10 6-7 7-8 8-9 8-15 16-17 17-18 18-19
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 9-10 9-11 10-14 11-12 12-13 13-14
isolated ring systems :
containing 1 :

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS

C:\stnweb\Queries\4.str





chain nodes :
15 16 20 21 22
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
ring/chain nodes :
17 26
chain bonds :
8-15 15-20 16-17 16-20
ring/chain bonds :
17-26
ring bonds :
1-2 1-6 1-10 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 9-11 10-14 11-12 12-13 13-14
exact/norm bonds :
1-10 6-7 7-8 8-9 8-15 15-20 16-17 16-20 17-26
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 9-10 9-11 10-14 11-12 12-13 13-14
isolated ring systems :
containing 1 :

G1:Cy,Ak

G2:[*1],[*2]

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 20:CLASS 21:CLASS 22:CLASS
26:CLASS

```
* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1           Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2           "Ask CAS" for self-help around the clock
 NEWS  3  JAN 27   Source of Registration (SR) information in REGISTRY updated
                   and searchable
 NEWS  4  JAN 27   A new search aid, the Company Name Thesaurus, available in
                   CA/CAplus
 NEWS  5  FEB 05   German (DE) application and patent publication number format
                   changes
 NEWS  6  MAR 03   MEDLINE and LMEDLINE reloaded
 NEWS  7  MAR 03   MEDLINE file segment of TOXCENTER reloaded
 NEWS  8  MAR 03   FRANCEPAT now available on STN
 NEWS  9  MAR 29   Pharmaceutical Substances (PS) now available on STN
 NEWS 10  MAR 29   WPIFV now available on STN
 NEWS 11  MAR 29   New monthly current-awareness alert (SDI) frequency in RAPRA
 NEWS 12  APR 26   PROMT: New display field available
 NEWS 13  APR 26   IFIPAT/IFIUDB/IFICDB: New super search and display field
                   available
 NEWS 14  APR 26   LITALERT now available on STN
 NEWS 15  APR 27   NLDB: New search and display fields available
 NEWS 16  May 10   PROUSDDR now available on STN
 NEWS 17  May 19   PROUSDDR: One FREE connect hour, per account, in both May
                   and June 2004
 NEWS 18  May 12   EXTEND option available in structure searching
 NEWS 19  May 12   Polymer links for the POLYLINK command completed in REGISTRY
 NEWS 20  May 17   FRFULL now available on STN
 NEWS 21  May 27   STN User Update to be held June 7 and June 8 at the SLA 2004
                   Conference
 NEWS 22  May 27   New UPM (Update Code Maximum) field for more efficient patent
                   SDIs in CAplus
 NEWS 23  May 27   CAplus super roles and document types searchable in REGISTRY
 NEWS 24  May 27   Explore APOLLIT with free connect time in June 2004

 NEWS EXPRESS  MARCH 31 CURRENT WINDOWS VERSION IS V7.00A, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 26 APRIL 2004
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
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 NEWS WWW      CAS World Wide Web Site (general information)

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FILE 'HOME' ENTERED AT 11:54:07 ON 09 JUN 2004

=> file reg
COST IN U.S. DOLLARS                            SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                                 0.21       0.21
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STRUCTURE FILE UPDATES: 7 JUN 2004 HIGHEST RN 690625-61-7
DICTIONARY FILE UPDATES: 7 JUN 2004 HIGHEST RN 690625-61-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

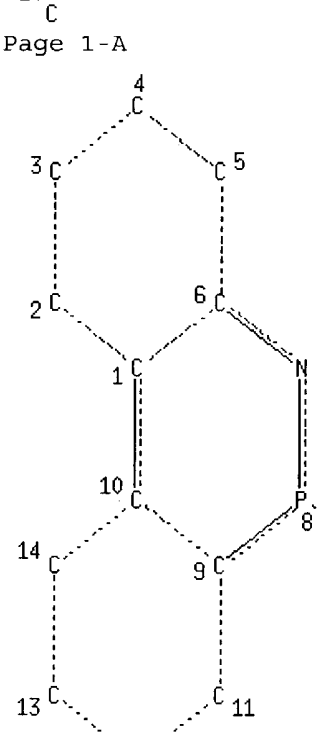
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

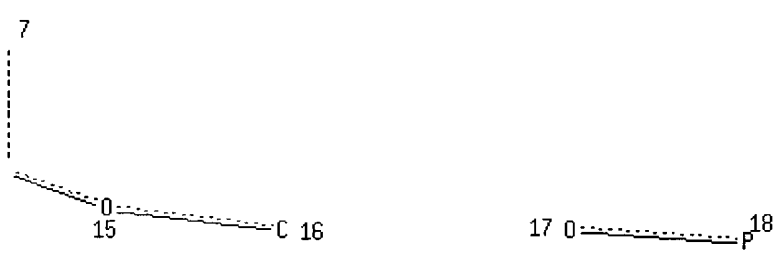
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=>
L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR

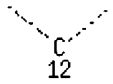




Page 1-D

C 23

Page 2-A



Page 2-C

G1
22

Page 2-D

O 20

G20
25

Page 4-C

N 21

Page 4-D

```
VAR G1=20-18 20-23/21-18 21-23
REP G20=(0-1) 19-18 19-24
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NSPEC   IS R      AT   2
NSPEC   IS R      AT   3
NSPEC   IS R      AT   4
NSPEC   IS R      AT   5
NSPEC   IS R      AT   6
NSPEC   IS R      AT   7
NSPEC   IS R      AT   8
NSPEC   IS R      AT   9
NSPEC   IS R      AT  10
NSPEC   IS R      AT  11
NSPEC   IS R      AT  12
NSPEC   IS R      AT  13
NSPEC   IS R      AT  14
NSPEC   IS C      AT  15
NSPEC   IS RC     AT  16
NSPEC   IS C      AT  17
NSPEC   IS RC     AT  18
NSPEC   IS RC     AT  19
NSPEC   IS C      AT  20
NSPEC   IS C      AT  21
NSPEC   IS RC     AT  22
NSPEC   IS RC     AT  23
NSPEC   IS RC     AT  24
NSPEC   IS C      AT  25
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT  15 16 17 18 19 20 21 23 24
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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RSPEC I
NUMBER OF NODES IS  25

STEREO ATTRIBUTES: NONE


=> s l1
SAMPLE SEARCH INITIATED 11:58:51 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -      1 TO ITERATE

100.0% PROCESSED       1 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:            1 TO       80
PROJECTED ANSWERS:               0 TO        0

L2            0 SEA SSS SAM L1

=> s l1 full
THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 11:58:55 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     31 TO ITERATE

100.0% PROCESSED      31 ITERATIONS                                2 ANSWERS
SEARCH TIME: 00.00.01

L3            2 SEA SSS FUL L1

=> file hcaplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                               158.36     158.57

FILE 'HCAPLUS' ENTERED AT 11:58:58 ON 09 JUN 2004
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FILE COVERS 1907 - 9 Jun 2004  VOL 140 ISS 24
FILE LAST UPDATED: 8 Jun 2004  (20040608/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


=> s l3
```

L4 1 L3

=> d l4, ibib abs fhitstr, 1

L4 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

ACCESSION NUMBER: 2002:405762 HCAPLUS
DOCUMENT NUMBER: 136:401882
TITLE: Preparation of novel phosphinine compounds and their metal complexes as catalysts for hydroformylation reaction
INVENTOR(S): Roettger, Dirk; Hess, Dieter; Boerner, Armin; Selent, Detlef; Kadyrov, Renat; Wiese, Klaus-Dieter; Borgmann, Cornelia
PATENT ASSIGNEE(S): OXENO Olefinchemie GmbH, Germany
SOURCE: Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1209164	A1	20020529	EP 2001-124864	20011018
EP 1209164	B1	20031210		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10058383	A1	20020529	DE 2000-10058383	20001124
AT 256135	E	20031215	AT 2001-124864	20011018
US 2002103375	A1	20020801	US 2001-989077	20011121
JP 2002212195	A2	20020731	JP 2001-357869	20011122

PRIORITY APPLN. INFO.: DE 2000-10058383 A 20001124
OTHER SOURCE(S): CASREACT 136:401882; MARPAT 136:401882
GI

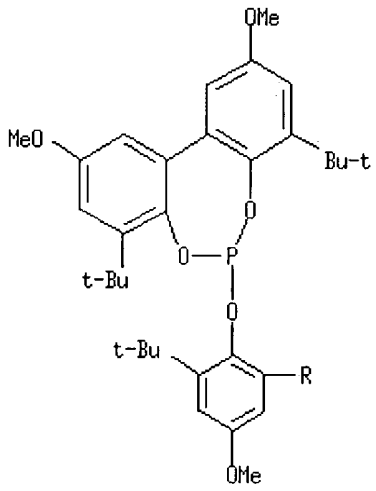
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The prepn. of title compds. I (n = 0-1; Y = O, NH, organoamino; R1-R9 = H, aliph. or arom. hydrocarbyl, F, Cl, Br, I, CF3, alkoxy, organocarbonyl, alkoxycarbonyl, alkali, alk. earth metal, ammonium, phosphonium substituted alkoxycarbonyl, organothio, organosulfonyl, etc.; Q, W, X = C1-50 aliph., alicyclic, aliph.-alicyclic, heterocyclic, aliph.-heterocyclic, arom., aliph.-arom. hydrocarbyl), useful as cocatalyst for [acacRh(COD)] catalyzed hydroformylation reaction, is described. Thus, cyclization of 2,2'-bis(6-tert-butyl-1-hydroxy-4-methoxyphenyl) with PCl3 in THF in presence of pyridine followed by alkoxylation with lithiated 2,2'-bis(6-tert-butyl-1-hydroxy-4-methoxyphenyl) and condensation with lithiated 10-chloro-9,10-dihydro-9-aza-10-phosphaphenanthrene gave 48% title compd. II. II cocatalyzed and [acacRh(COD)] catalyzed hydroformylation of 1-octene to give nonanal is described.

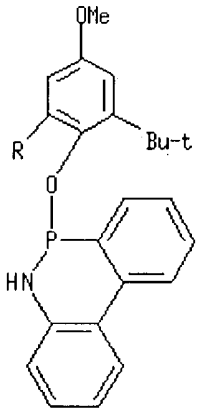
IT **431888-81-2P**
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. as cocatalyst for rhodium catalyzed hydroformylation reaction)

RN 431888-81-2 HCAPLUS
CN Dibenzo[c,e][1,2]azaphosphorine, 6-[[2'-[[4,8-bis(1,1-dimethylethyl)-2,10-dimethoxydibenzo[d,f][1,3,2]dioxaphosphepin-6-yl]oxy]-3,3'-bis(1,1-dimethylethyl)-5,5'-dimethoxy[1,1'-biphenyl]-2-yl]oxy]-5,6-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> file caold

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	7.12	165.69

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-0.69	-0.69

FILE 'CAOLD' ENTERED AT 11:59:32 ON 09 JUN 2004
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FILE COVERS 1907-1966
FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

=> **d his**

(FILE 'HOME' ENTERED AT 11:54:07 ON 09 JUN 2004)

FILE 'REGISTRY' ENTERED AT 11:54:21 ON 09 JUN 2004
L1 STRUCTURE UPLOADED
L2 0 S L1
L3 2 S L1 FULL

FILE 'HCAPLUS' ENTERED AT 11:58:58 ON 09 JUN 2004
L4 1 S L3

FILE 'CAOLD' ENTERED AT 11:59:32 ON 09 JUN 2004

=> **s l3**
L5 0 L3

=> **file reg**

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.42	166.11

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-0.69

FILE 'REGISTRY' ENTERED AT 11:59:40 ON 09 JUN 2004
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STRUCTURE FILE UPDATES: 7 JUN 2004 HIGHEST RN 690625-61-7
DICTIONARY FILE UPDATES: 7 JUN 2004 HIGHEST RN 690625-61-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more

information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=>
L6 STRUCTURE UPLOADED

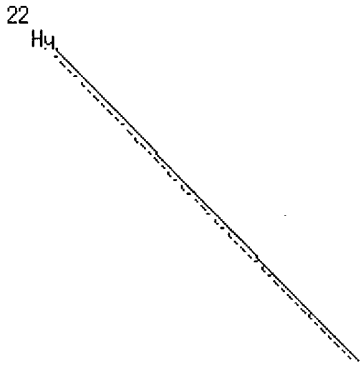
=> d l6
L6 HAS NO ANSWERS
L6 STR

=> s l6
GENERIC GROUP NOT VALID HERE
Generic groups may not be used in these circumstances:

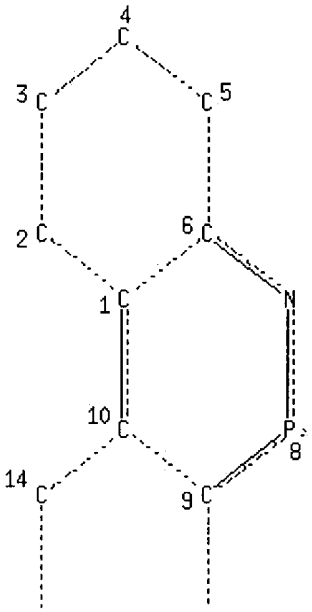
1. Any generic group node (e.g., Hy) in a ring.
2. An Ak node attached to another Ak node.

=>
L7 STRUCTURE UPLOADED

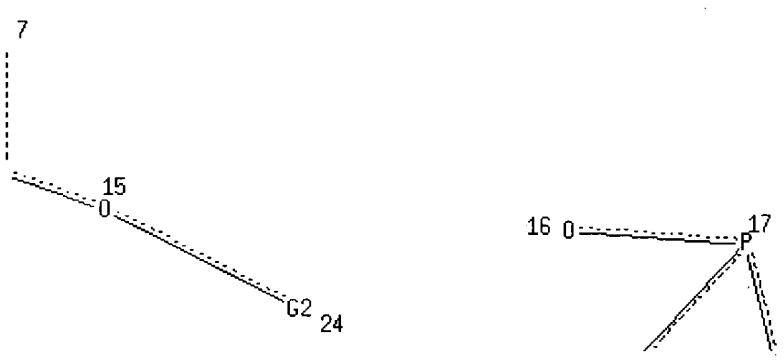
=> d l7
L7 HAS NO ANSWERS
L7 STR



Page 1-A
Cy 25Ak 26

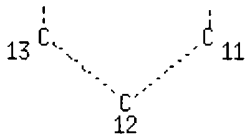


Page 1-C



Page 1-D

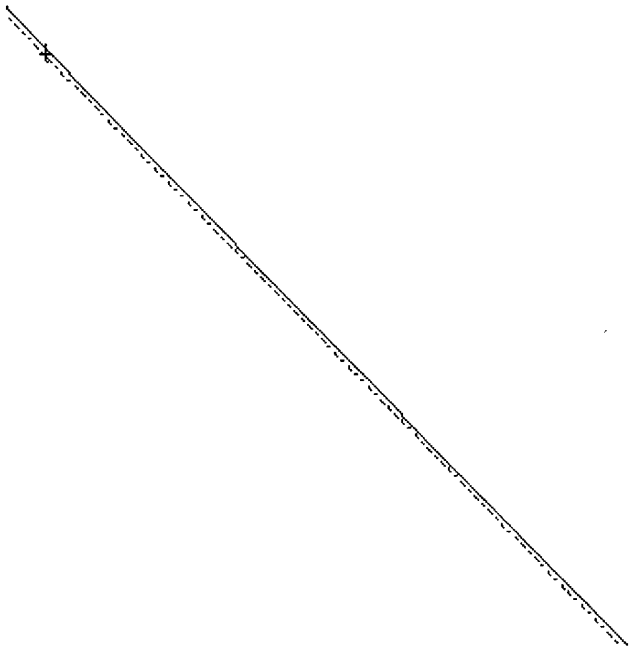
Page 2-A



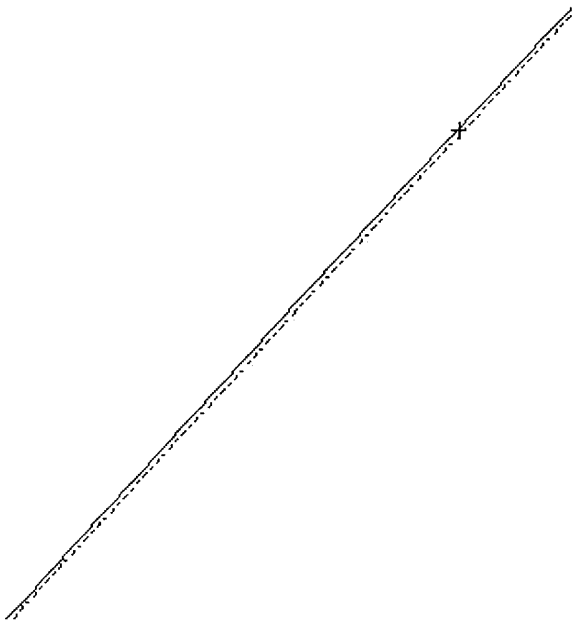
Page 2-C

Page 2-D

Page 3-A



Page 3-B



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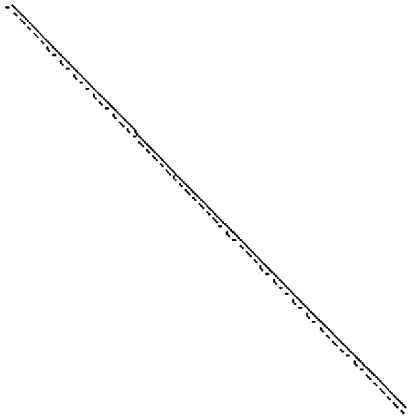
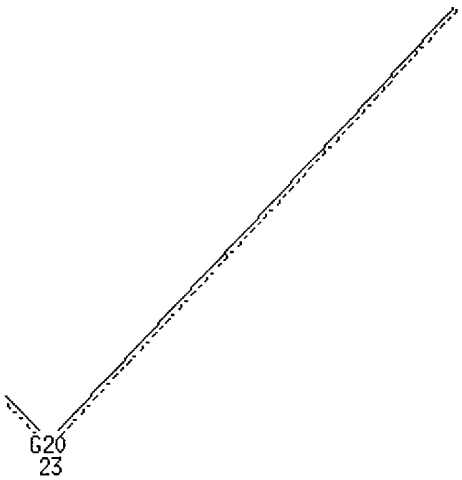
Page 3-D



Page 4-B



0 19

```
Page 4-C
 N 20
Page 4-D
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VAR G2=25/26
REP G20=(0-1) 18-17 18-22
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NSPEC   IS R      AT   1
NSPEC   IS R      AT   2
NSPEC   IS R      AT   3
NSPEC   IS R      AT   4
NSPEC   IS R      AT   5
NSPEC   IS R      AT   6
NSPEC   IS R      AT   7
NSPEC   IS R      AT   8
NSPEC   IS R      AT   9
NSPEC   IS R      AT  10
NSPEC   IS R      AT  11
NSPEC   IS R      AT  12
NSPEC   IS R      AT  13
NSPEC   IS R      AT  14
NSPEC   IS C      AT  15
NSPEC   IS C      AT  16
NSPEC   IS RC     AT  17
NSPEC   IS RC     AT  18
NSPEC   IS C      AT  19
NSPEC   IS C      AT  20
NSPEC   IS RC     AT  21
NSPEC   IS RC     AT  22
NSPEC   IS C      AT  23
NSPEC   IS C      AT  24
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT  15 16 17 18 19 20 22 25 26
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  26

STEREO ATTRIBUTES: NONE


=> d his

     (FILE 'HOME' ENTERED AT 11:54:07 ON 09 JUN 2004)

     FILE 'REGISTRY' ENTERED AT 11:54:21 ON 09 JUN 2004
L1              STRUCTURE UPLOADED
L2            0 S L1
L3            2 S L1 FULL

     FILE 'HCAPLUS' ENTERED AT 11:58:58 ON 09 JUN 2004
L4            1 S L3

     FILE 'CAOLD' ENTERED AT 11:59:32 ON 09 JUN 2004
L5            0 S L3

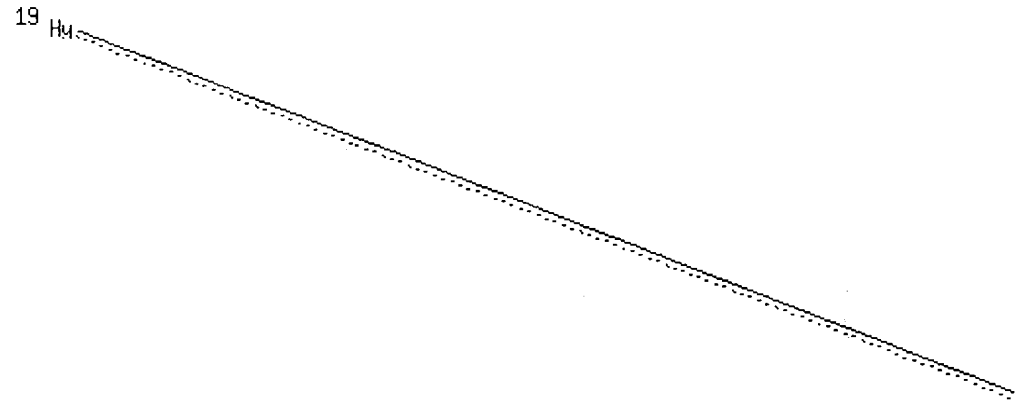
     FILE 'REGISTRY' ENTERED AT 11:59:40 ON 09 JUN 2004
L6              STRUCTURE UPLOADED
L7              STRUCTURE UPLOADED
```

```
=> s l7
GENERIC GROUP NOT VALID HERE
Generic groups may not be used in these circumstances:

       1.  Any generic group node (e.g., Hy) in a ring.
       2.  An Ak node attached to another Ak node.

=>
L8       STRUCTURE UPLOADED

=> d 18
L8 HAS NO ANSWERS
L8                STR
```



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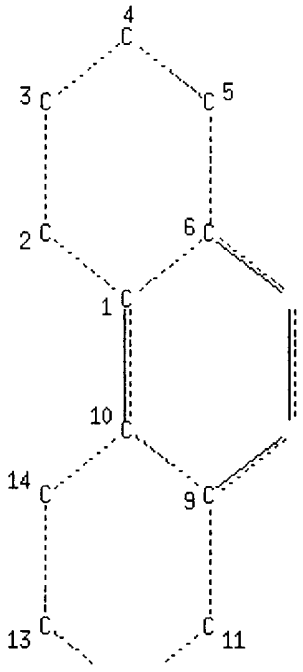
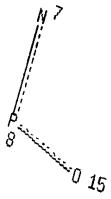
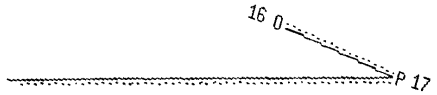
Page 1-B



Page 1-C



O 18



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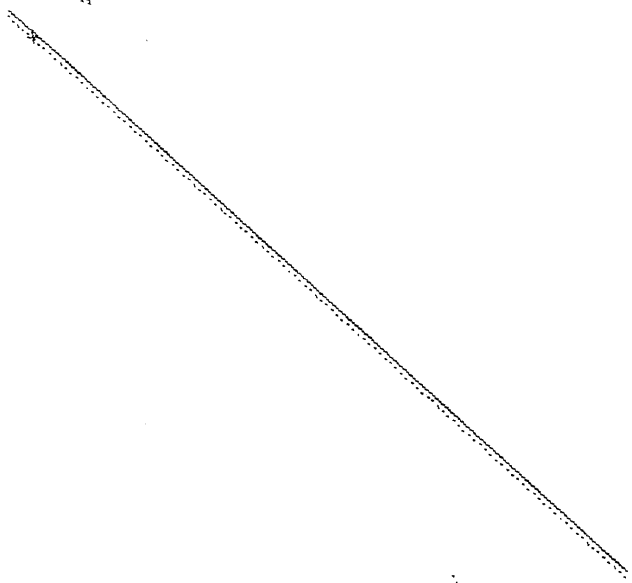
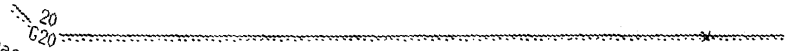
Page 2-A



Page 2-B



Page 2-C

Page 2-D
REP G20=(0-1) 18-17 18-19
NODE ATTRIBUTES:
NSPEC IS R
NSPEC IS R AT 1
NSPEC IS R AT 2
AT 3

```
NSPEC   IS R      AT   4
NSPEC   IS R      AT   5
NSPEC   IS R      AT   6
NSPEC   IS R      AT   7
NSPEC   IS R      AT   8
NSPEC   IS R      AT   9
NSPEC   IS R      AT  10
NSPEC   IS R      AT  11
NSPEC   IS R      AT  12
NSPEC   IS R      AT  13
NSPEC   IS R      AT  14
NSPEC   IS C      AT  15
NSPEC   IS C      AT  16
NSPEC   IS RC     AT  17
NSPEC   IS RC     AT  18
NSPEC   IS RC     AT  19
NSPEC   IS C      AT  20
DEFAULT MLEVEL IS ATOM
MLEVEL  IS CLASS  AT  15 16 17 18 19
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  20

STEREO ATTRIBUTES: NONE


=> s 18
GENERIC GROUP NOT VALID HERE
Generic groups may not be used in these circumstances:

       1.  Any generic group node (e.g., Hy) in a ring.
       2.  An Ak node attached to another Ak node.

=>
L9      STRUCTURE UPLOADED

=> d 19
L9 HAS NO ANSWERS
L9              STR

=> s 19
SAMPLE SEARCH INITIATED 12:09:37 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -      1 TO ITERATE

100.0% PROCESSED       1 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:            1 TO       80
PROJECTED ANSWERS:               0 TO        0

L10           0 SEA SSS SAM L9

=> s 19 full
THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 12:09:43 FILE 'REGISTRY'
```

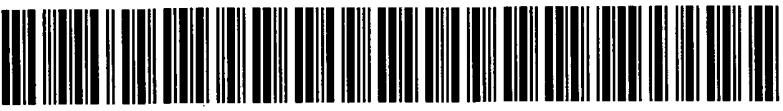
```
FULL SCREEN SEARCH COMPLETED -     38 TO ITERATE

100.0% PROCESSED      38 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

L11            0 SEA SSS FUL L9

=>
```

JS 100905940AP1



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No.	Doccode	Number of pages
1	NOA	3
2	NOA	3
3	IIFW	1
4	FWCLM	1
5	SRFW	1

Total number of pages: 9

Remarks:

Order of re-scan issued on .....